Study on relative merits of incentive packages extended to Panipat and Bhatinda refineries

Final report

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Executive summary

Profitability dimensions

Given the nature of the refining industry wherein the investment stakes are of the order of thousands of crores, the profitability of refining projects gets affected by a number of parameters. Therefore, issues such as duties; tax regimes; capital structure; incentives; etc. become equally important. Specifically, for refineries, the following can be crucial,

Crude and product spreads: The incessant volatility in global crude and product prices
Tariff protection: The differential between custom tariffs on crude and petroleum products
Entry tax: The tax applicable on goods brought into local area from any place outside a state for consumption, use or sale therein
Duty waiver/deferral: Exemption/deferral of specific duties such as excise, sales tax, etc.
Tax holidays: Waiver on corporate tax payable for a specified period

The above mentioned have a direct bearing on the economics of refineries. Some parameters like the level of tariff protection are applicable to all, while others like entry tax are location specific. Incentives from State Governments are primarily project specific and vary from case to case.

This report examines the impact of specific incentives extended to the 9 MMTPA grassroots Bhatinda refinery and the 6 MMTPA expansion project at Panipat by their respective State Governments to compare the key financial parameters of the two projects. The financial analysis for the Bhatinda refinery is taken up in the next section while that for the Panipat refinery follows.

Financial analysis: Bhatinda refinery

Cash flows for the project were generated over a 20-year horizon on the basis of the following:

Operating parameters

Sales realisation

Sales were valued at import parity, i.e., the landed price of product at the nearest port to Bhatinda (Kandla, Gujarat) and rail freight thereafter. Import parity prices reflect average Middle East Gulf prices over the year 2000/01 and prevailing tariffs. Base year exchange rate was pegged at Rs 48 per USD with 2% annual devaluation over the project life.

Crude costs

Base year crude costs are estimated at Rs 9,920/MT reflecting the landed price of Arab Medium crude at Mundra, Gujarat.

Operating costs

As per data furnished by GGSRL (Guru Gobind Singh Refineries Ltd) officials, operating costs aggregate Rs 514 crores per annum. An escalation of 6%[a] p.a. has been considered over the project life.

Interest and depreciation

Financial costs have been based on a debt-equity ratio of 1.5:1; a loan tenure of 8 years & a moratorium of 3 years; and an interest rate of 14% p.a. Interest on working capital is considered at 16% p.a.

Depreciation is on WDV (Written Down Value) basis as per standard rates applicable to various categories.

Incentives from State Government

Sales tax deferral

The project enjoys deferment of sales tax to the extent of 300% of fixed capital investment to be availed in 15 years with a provision for repayment of deferred amount in 30 semi-annual interest free instalments. Fixed capital investment for the project aggregates Rs 7,958[b] crores. Accordingly, maximum benefit the project can avail is capped at Rs 23,873 crores.

The corresponding half yearly instalment to be initiated at the end of 15 years is Rs 796 crores (Rs 796 crores x 30 = Rs 23,873 crores). The present value of an annuity of 796 crores, initiated 15 years from zero date, with 30 half yearly instalments is Rs 1,374 crores only.

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[a] Annual WPI (Whole Sale Price Index) increased at 5.5% over the past three years

[b] Total project cost less capital investment towards pipeline

As against this, the present value of sales tax benefit, i.e., sales tax charged to consumer but not surrendered to the State government is Rs 10,783 crores. The net benefit from sales tax deferment is, thus, Rs 9,408crores (Rs 10,783 crores less Rs 1,374 crores). On a unit basis the incidence of sales tax deferment is as much as Rs 780/MT or $ 2.28/bl.

Other benefits

Other benefits extended by the State Government include,

- Sharing of infrastructure development expenses to the extent of Rs 180 crores
- Supply of free water during construction period
- Exemption of electricity duty on generation of power for own consumption in the refinery for 15 years

Project evaluation

The impact of the above-mentioned on the economics of the project is analysed in Table 2. The sensitivity of key financial parameters of the project to incentives extended by the State government is very high.

Table 2 Sensitivity of key financial parameters of Bhatinda refinery to concessions from State Government

Parameter	*With concessions/ incentives*	*Without concessions/ incentives*
Internal rate of return	18.93%	10.02%
Net Present Value	Rs 4277 crores	- Rs 4,546 crores
Payback period	9.7 years	17.3 years

As is evident, the project becomes unviable in the absence of the concessions extended to it. The most significant aspect of the concession scheme is the deferral on sales tax, estimated at $ 2.28/bl.

Gross and net refining margins for the 15-year operating period are presented in Table 3.

Table 3 Margins for Bhatinda refinery ($/bl)

Year	*Gross Refining Margin*	*Net Refining Margin*
Year 0	9.34	-2.96
Year 1	10.65	3.16
Year 2	10.67	4.16
Year 3	10.49	2.51
Year 4	10.32	3.07
Year 5	10.14	3.52
Year 6	9.96	3.88
Year 7	9.77	4.19
Year 8	9.58	4.44
Year 9	9.39	4.65
Year 10	9.19	4.83
Year 11	9.00	4.98
Year 12	8.80	4.90
Year 13	8.59	4.80
Year 14	8.38	4.70

Notes:
Gross Refining Margin = Sales - Crude costs -Operating costs
Net Refining Margin = Gross Refining Margin - Depreciation - Interest - Taxes

As is evident, the project is extremely sensitive to the deferred sales tax benefit incentive extended to it by the State Government. In order to analyse the sensitivity, two scenarios were constructed: one wherein the incentive period is slashed down to 10 years and the other with one-third reduction in sales tax rates in the state. The impact of these on project financials is presented in Table 4.

Table 4 Project financials for Bhatinda refinery with variations in sales tax benefit incentive

Parameter	*10-year incentive period*	*33% reduction in sales tax*
Internal rate of return	16.87%	16.62%
Net Present Value	Rs 1,908 crores	Rs 1,855 crores
Payback period	11.01 years	11.05 years

In the event that the sales tax retained is treated as accrued income for the project, the tax[a] payable is higher and the project IRR drops.

Table 5 Impact of fiscal treatment of sales tax benefit

Parameter	*Without tax on sales tax retained*	*With tax on sales tax retained*
Internal rate of return	18.93%	15.44%
Net Present Value	Rs 4277 crores	Rs 609 crores
Payback period	9.7 years	11.9 years

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[a] Sales tax retained taxed at corporate tax rate of 35% plus 10% surcharge

The estimated cost of production for the Bhatinda refinery at first year of full capacity utilisation after expiry of the moratorium on the loan is presented in Table 6.

Table 6 Estimated cost of production for Bhatinda refinery (Rs/MT)

Parameter	*Value*
Crude cost	10527
Operating costs	680
Depreciation	833
Financial charges*	1212
Inventory carrying costs	234
Total	13486

* *Excludes deferred sales tax benefit*

Financial analysis: Panipat refinery expansion project

Information on IOC's panipat refinery expansion project has been collated from data in the public domain; and interviews with officials from Government of Haryana and IOC.

Project cost

The original project cost for the 6 MMTPA expansion of the Panipat refinery was pegged at Rs 3,365 crores. However, with fuel quality upgradation costs, the revised project cost is now Rs 4,165 crores. This includes Rs 500 crores towards expansion of the Salaya-Chaksu-Panipat section of the Salaya-Mathura pipeline to handle an additional 6 MMT of crude for the expansion.

Technical parameters

Crude mix and yield pattern for the expansion project are assumed to be identical to that of the existing project.

Sales realisation

Refinery gate prices of products are assumed to be at import parity, i.e., the landed cost of product at the nearest port (Kandla, Gujarat) and rail freight thereafter till Panipat.

Operating costs

Base year weighted average crude cost for the refinery is estimated at Rs 10,726/MT.

As regards crude transportation, the original expansion plans envisaged augmenting the capacity of the Salaya-Chakshu-Panipat crude pipeline at a cost of Rs 500 crores. However, IOC is now considering crude imports for the expansion project at Mundra, Gujarat; a new link from Mundra to Kandla; and conversion of KBPL (Kandla Bhatinda Pipeline) into a crude carrier. The cost towards use of jetty and associated facilities at Mundra is reported at Rs 120/MT, while that for the new link from Mundra to Kandla is estimated as Rs 59/MT. Operating costs for KBPL, as per indicative tariffs estimated by ETG, are likely to be of the order of Rs 150/MT. Accordingly, the costs for crude transportation for the expansion project are estimated at Rs 329/MT.

Other operating costs for the project, covering salaries, repair and maintenance, chemicals and consumables, and administrative expenses, are assumed to be similar to that for the existing unit and estimated as Rs 174 crores per annum.

Incentives/concessions

Interviews with Haryana State Government officials revealed that the only financial benefit accorded to the expansion is a waiver on the Local Areas Development Tax (LADT). No benefits have been given to the project with respect to waiver/deferment of sales tax.

Under Section 11 of Haryana Local Area Development Tax Act, 2000 the Government of Haryana has exempted the Panipat Refinery expansion of IOC, with effect from date of trial production, from the tax payable under said act in respect of entry of crude oil, feedstock, naphtha and other consumables like catalysts, chemicals, maintenance, spares into local area.

Under the same Act, the Government also exempts Para-xylene Purified Terethalic Acid project of IOC with effect from date of trial production from the tax payable under the said Act in respect of entry of naptha and other consumables like catalysts, chemicals, maintenance, spares into local area.

The tax is leviable at 4% of the landed cost of crude/consumables into local area. The existing project is not exempt from LADT. Based on crude priced prevailing over the period 2000/01, the incentive translates into an annual benefit of Rs 257 crores.

Project evaluation

One of the most important factors affecting the financial viability of the project is the mode of crude transportation. Original plans envisaged augmenting the capacity of the Salya-Chakshu-Panipat pipeline at a cost of Rs 500 crores. Now, IOC is reportedly considering conversion of the Kandla-Panipat section of the

KBPL into a crude carrier. The sensitivity of key financial parameters of the project to this issue is examined in Table 7.

Table 7 Sensitivity of Panipat expansion project to crude transportation arrangements

Parameter	*With KBPL conversion to crude carrier*	*Without KBPL conversion to crude carrier*
Internal rate of return	16.64%	12.53%
Net Present Value	Rs 490 crores	- Rs 664 crores
Payback period	18.6 years	25.5 years

As is evident, the project viability is under threat if KBPL is not used as a crude carrier. It may be expected, thus, that *IOC would try to convert KBPL into a crude carrier to make the project viable.*

Gross and net refining margins for the project, over a 17-year operating period are presented in Table 8.

Table 8 Margins for Panipat expansion project ($/bl)

Year	*Gross Refining Margin*	*Net Refining Margin*
Year 0	4.40	-1.76
Year 1	5.85	1.98
Year 2	5.94	3.30
Year 3	5.83	2.09
Year 4	5.71	2.60
Year 5	5.60	3.00
Year 6	5.49	3.31
Year 7	5.37	1.95
Year 8	5.25	2.08
Year 9	5.13	2.18
Year 10	5.01	2.27
Year 11	4.88	2.34
Year 12	4.76	2.29
Year 13	4.63	2.24
Year 14	4.50	2.18
Year 15	4.37	2.12
Year 16	4.23	2.05

Based on the above, the estimated cost of production for the expansion project at first year of full capacity utilisation after expiry of moratorium on loan is presented in Table 9.

Table 9 Estimated cost of production for expansion project (Rs/MT)

Parameter	*Value*
Crude cost	11382
Operating costs	674
Depreciation	542
Financial charges	607
Inventory carrying costs	251
Total	**13455**

Comparative analysis of Bhatinda refinery against Panipat expansion project

Project costs for the 6 MMTPA expansion at Panipat are lower than that of the grass-roots refinery at Bhatinda. A comparison of refinery gate costs of the two projects at first year of full capacity utilisation indicates that the expansion project has a marginal edge over the Bhatinda refinery of the order of 0.2% at the refinery gate.

Table 10 Comparison of refinery gate costs (Rs/MT)

Parameter	*Bhatinda refinery*	*Panipat expanion*
Crude cost	10527	11382
Operating costs	680	674
Depreciation	833	542
Financial charges	1212	607
Inventory carrying costs	234	251
Total	**13486**	**13455**

However, as against the Panipat expansion project, the Bhatinda refinery has the benefit of deferred sales tax payment. The net benefit of this incentive is estimated to be Rs 780/MT. With this benefit, the scenario changes altogether. *Panipat's refinery gate costs are now higher than those of Bhatinda by 5.9%.*

Table 4.2 Comparison of refinery gate costs with sales tax benefits factored (Rs/MT)

Bhatinda refinery	*Panipat expanion*
12706	13455

Ofcourse, the competitiveness of the refineries would vary in individual markets depending upon freight economics from the two refineries.

Recommendations

The analysis reveals that benefits from the State Government have a crucial role in competitiveness of the Bhatinda refinery against the Panipat expansion project. IOC's project, on the other hand, is critically dependent upon conversion of KBPL into a crude carrier. Overall, with the benefits factored, the Bhatinda refinery has an edge over the expansion project at Panipat. In order to further improve its competitiveness, HPCL could explore the following.

Provisions of sales tax deferment

Notably, the sales tax deferment has a pronounced impact on the economics of the project. Accordingly, HPCL must explore all possible avenues for maximising the benefit from this provision.

While availing the 15 years sales tax deferment, HPCL should attempt to seek the applicability of the same from the date of *commercial production* only. Further HPC could also explore the possibility of a moratorium, say 5 years, to initiate the half yearly instalments to payback the deferred liability. Given the time value of money, deferred repayment would further enhance project profitability.

Equity for deferred liability

The deferred sales tax payment is essentially an interest free loan from the State Government to the project. HPCL could, thus, explore the possibility of asking the State Government to consider the deferred liability as a convertible loan from the State Government to HPCL. Under the arrangement, HPCL could request the State Government to infuse the accumulated sales tax as equity participation in the project at the end of the 15-year deferral. This would ensure active participation of the State Government in the project at one hand and at the other strengthen the equity base of the project to raise fresh debt in the future.

Use of KBPL as a common carrier crude pipeline

The crude pipeline from Mundra to Bhatinda at a cost of Rs 2,353 crores, accounts for over 20% of the project costs. Since, IOC plans to convert KBPL into a crude carrier, HPC should try to use the same on a common carrier basis to transport crude for its refinery.

It may be noted that the KBPL was put up by IOC under the APM regime and hence IOC would have already received adequate consumption for the same from the oil pool. Moreover, in its current form as a product carrier, it is still used as a common carrier for the entire industry.

Accordingly, HPCL should try to persuade the State Government to take up the issue of 'common carrier' status for KBPL with the Union Government.

Infrastructure development costs

HPCL could also explore the possibility of asking the Punjab Government to bear the infrastructure development costs for the project in total instead of sharing the same to the extent of 50% only. Any relief towards fixed costs of the project, would reduce the cost of production and make the refinery competitive to IOC's expansion project.

Fast track clearances

Though not directly related to the refining project, HPCL could try to get assurances from the Punjab Government for fast track clearances for setting up new retail outlets in the state. A well established marketing infrastructure would help enhance overall bottomlines for the company.

1

Profitability dimensions in the refining industry

Introduction

At the most basic level, a project's profitability is determined simply by its operating parameters, i.e., direct costs attributable to that project and its associated revenue streams. However, with complex project structures involving many stakeholders – equity shareholders, financiers, governments, etc., several dimensions are added to a project's profitability. Additional factors that come into play include investment issues such as phasing of capital expenditure, depreciation, salvage value of equipment, sale of assets, etc. Additionally, there is a whole range of financial issues that critically affect profitability such as capital structure, cost of capital, tax provisions, fiscal incentives from Central and State governments, etc.

Given the nature of the refining industry wherein the investment stakes are of the order of thousands of crores, these added dimensions become even more prominent and crucial for profitability. Accordingly, an attempt has been made to analyse the various dimensions to profitability of refineries in the Indian context.

The task requires classification of basic project parameters into fixed and variable categories. There are a number of parameters that are essentially fixed for a project and, thus, have to be treated as given, viz., capital costs, capital structure, operating expenses, etc. Next, there are exogenous factors, essentially derived from the prevailing policy framework, that do affect profitability, but again these factors are to be treated as given constants for a project, such as, rates of custom duties, corporate tax rate, etc. There remains, however, a third category of parameters that allow for strategic intervention on part of promoters to affect the profitability of a refining project. These primarily constitute discretionary concessions (sales tax, entry tax, etc.) and incentives (sharing of development costs, concessional pricing on utilities, etc.) that the promoters could extract from respective State governments.

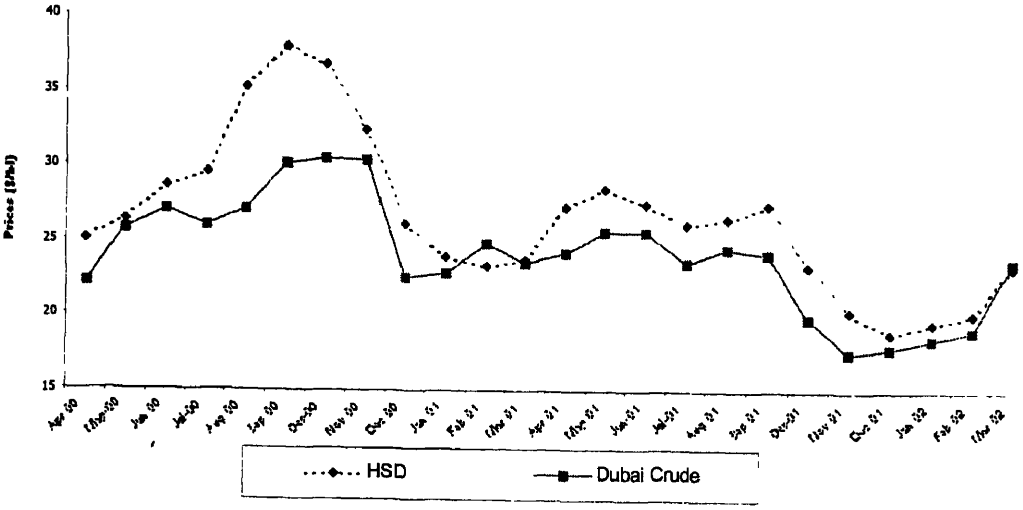
An important point to note is the additive nature of these parameters. Duties and taxes are *ad valorem* in nature. For instance, in the product price build-up, sales tax applicable at the point of sale includes incidence of excise, freight, and custom duties. A change in any one of these parameters affects all the others in the chain and ultimate effect on the final variable, i.e., the sales tax payable is quite magnified.

The following sections, accordingly, provide a brief review of the implications of such parameters on profitability of refineries.

Crude and product spreads

Refining margins are essentially embedded in the crude and product price differentials prevailing in international oil markets. Of late there has been substantial volatility in international oil prices. Since 1999, oil prices have witnessed a roller coaster ride from a low of $ 9/bl to over $ 35/bl. International oil prices today are dictated more by cartel actions of the OPEC (Organisation of Petroleum Exporting Countries) than by market dynamics. To make matters worse for refineries, crude and product prices rarely move in tandem (See Figure 1).

Figure 1 Price volatility and spreads



As is evident, from the above, in today's environment, with wide fluctuations in crude and product spreads, refining profits are under considerable stress.

Under such a scenario, a refinery's crude mix is crucial for profitability. While little can be done regarding international product prices, a refinery can reduce its raw material costs with appropriate diversification in crude sourcing. For instance, Reliance's 27 MMTPA refinery at Jamnagar can process a wide variety of crudes ranging from light to heavy and sweet to sour. The API degree of crude mix for the refinery ranges from 18 to 45, with sulphur content up to 4.5%. Such a configuration gives the refinery substantial flexibility to optimise on its crude costs. RPL has reportedly entered into a long-term agreement to procure Venezuela's Mesa crude by negotiating hard on prices to offset freight diseconomies.

Tariff protection

Tariff protection enhances basic crude and product spreads. With differential tariffs applicable on crude and petroleum products, the domestic refining industry receives some degree of protection against imports. In 1996, the Union Government appointed the Expert Technical Group (ETG) to review the then prevailing pricing system and examine the sectoral impacts of different levels of duty in case of dismantling of the Administered Pricing Mechanism (APM). On the basis of the recommendations of the ETG, the Government announced the phased dismantling of the APM in 1997. The ETG had recommended a protection level of 10-15% for the oil industry, with the duty on crude oil ranging from 0-5% while that on products at 15%.

The APM has been dismantled with effect from 1st April 2002. Prevailing tariffs is of the order of 10% for transportation fuels (See Table 1.1).

Table 1.1 Prevailing custom duties on crude and petroleum products (%)

Customs Duty	*ETG Recommendations*	*Actual*
Crude	0	10
LPG	10	10
MS	15	20
Naphtha	5	10
ATF	15	20
PDS Kerosene	0	10
HSD	15	20
FO/LSHS	10	20

The actual protection level that a refinery might avail, however, can be different depending upon refinery's mix of domestic sales and exports. The Indian EXIM policy allows for duty free imports of crude oil against export of refined products under 'Advance Licenses'. Under the scheme, for instance, for every tonne of export of MS/Naphtha, 1.28 tonnes of crude can be imported free of customs duty. The same figure goes up to 1.55 tonnes of duty free imports of crude for every tonne of LPG export, while only 1.07 tonne of duty free crude is allowed against exports of HSD/SKO/LDO.

Coastal refineries are the major beneficiaries of this scheme as exports from hinterland refineries are difficult. Considering again the case for RPL at

Jamnagar, the average crude cost for the refinery for the year 2000/01 is estimated at Rs 9,640/MT. Net of landing charges, say Rs 50/MT, the average custom duty on crude paid by the refinery would be of the order of Rs 1,251/MT (15% basic customs duty on crude in 2000/01). During the same year, RPL exported a total of 6.8 MMT, wherein diesel exports stood at 1,597 TMT and MS exports were 1,444 TMT. Against these two products alone, RPL would have been entitled to import 3,557 TMT of crude oil free of duty under the advanced licensing scheme. The, net benefit accruing to the refinery from MS and HSD exports alone, is thus, of the order of Rs 445 crores (3,557 TMT x Rs 1,251/MT).

Entry tax

With custom collections accruing to the Union Government, a number of states have imposed entry tax on goods brought into local area to shore up their revenues. The tax is applicable on goods brought into local area from any place outside the state for consumption, use or sale therein. When applicable on raw materials, entry tax is generally offset against sales tax payable on goods produced with the raw materials so as to avoid double taxation. States which have levied entry tax on crude include the likes of Bihar (2%), Uttar Pradesh (3%), Haryana (4%), etc.

Entry tax distorts the basic protection level offered to refineries and, thus, has a significant impact on refining economics. Oil companies considering new projects are thus often at loggerheads with State departments for a waiver on entry tax. A case in point has been the negotiations of IOC with the Government of Haryana on waiver of entry tax for the expansion of Panipat refinery. Based on the refinery's current crude mix and global oil prices prevalent over the year 2000/01, the imposition of the Haryana Government's Local Area Development Tax at 4% on the landed price of crude at the refinery gate translated into an annual outgo of Rs 257 crores for IOC. Considered on a throughput of 6 MMPTA, the impact is as high as Rs 429/Mt or $ 1.2/bl.

Sales tax

Sales tax issues have several implications for the oil sector, affecting transportation logistics at one end to investment decisions at the other.

Inter-state movement

The wide variations in sales tax on petroleum products levied by State Governments affects distribution logistics for oil companies. With sales tax on petroleum products as high as 20% in some states, bulk consumers in such states prefer inter-state procurement which attracts the central sales tax leviable at 4% only. However, with the Central Bureau of Investigation unearthing a scam in bogus certification and concessional sales to non-existent consumers, a ban on inter-state movement of bulk petroleum products had been introduced. This ban was subsequently lifted with directions to oil companies to ensure inter-state sales to only those customers who physically exist and to verify the certificates granted by the sales tax authorities once a year.

The differential sales tax rates is also a cause for concern for refineries who lose market volumes to imports. Given the high sales tax rates, bulk consumers prefer to procure their requirements via direct imports for captive consumption. Loss of such volumes adversely affects refinery realisations and margins.

Investment decisions

Till recently one of the tools used by State governments to attract investment has been concessionary terms on sales tax payments. Refining projects, too, have been granted provisions for deferred sales tax payments/ exemptions by some states. However, the Empowered Committee of State Finance Ministers on Sales Tax Reforms took a decision in the year 2000 to discontinue such benefits to new projects. Projects which have already been given such benefits, would of course, continue to enjoy the same.

Deferred sales tax provisions have a substantial impact on project economics. Consider for instance, the case of RPL. RPL enjoys a provision for deferred sales tax from the Gujarat State Government. RPL's sales tax liability for the year 2000/01 as reported in its annual report works out to be Rs 960 crores. The company had set aside Rs 100 crores to defease this liability, and in the process realised a net benefit of Rs 860 crores. Spread over a throughput of 25,123 TMT during the year 2000/01, the net benefit accruing to the company is as much as Rs 342/MT or $ 0.97/bl.

Likewise, the Karnataka Government gave MRPL's expansion project sales tax concessions up to Rs 250 crores per annum for a period of 14 years. The concession, however, is much smaller in comparison to that enjoyed by RPL. Considering a discount rate of 15%, the net benefit over the 14 year horizon is estimated to be Rs 1,152 crores. The corresponding benefit on a unit basis is only Rs 22/MT.

Fiscal treatment of benefit

An important point of consideration is with regards to the fiscal treatment of deferred sales tax benefits. Under the deferment provision, sales tax, though collected from consumers, is not passed on to the State Government. There emerges a possibility that the same, thus, might be treated as accrued income to the refinery. Under such a scenario, the benefit becomes part of the taxable income for the refinery. The impact of this on project economics is further examined under the analysis for Bhatinda refinery.

The above-analysis essentially provides a brief summary on exogenous factors affecting refinery economics. These coupled with project specifics on investments; operating costs; and financial structure determine the financial worth a project. Specific analysis with regards to these aspects for the grassroots Bhatinda refinery and expansion of Panipat refinery is taken up in the subsequent chapters.

2

Financial analysis of Bhatinda refinery

Financial analysis of the 9 MMTPA Bhatinda refinery involves generating the profit and loss account of the project over a 20 year horizon and the assessment of cash flows from the same. Key project parameters that need to ascertained to generate the profit & loss account are:

- Sales realisation
- Operating costs
- Financial costs: Interest on term loans and working capital
- Depreciation
- Corporate tax

Sales realisation

Refinery gate prices of products are assumed to be at import parity, i.e., the landed cost of product at the nearest port (Kandla, Gujarat) and rail freight thereafter till Bhatinda. Key assumptions in the import parity price calculations are:

- Landed price derived from the average Fob Middle East product prices over the year 2000/01
- Exchange rate of Rs 48 per US dollar for the base year with 2% devaluation in exchange rate thereafter
- Prevailing custom duties on products

Indicative import parity prices for the base year at Bhatinda are presented in Table 2.1 (See Annexure 4 for detailed calculations).

Table 2.1 Indicative base year refinery gate product prices: Bhatinda (Rs/MT)

Product	*Import Parity Price*
LPG	21141
MS	18309
ATF	17381
SKO	15282
HSD	15455
Sulphur	3059

Based on the above, aggregate sales realisation for the refinery at first year of full capacity utilisation is estimated at Rs 13,285 crores.

Operating costs

Crude costs make up the bulk of the operating costs for the refinery. The refinery is designed to process Arab Medium crude. Again, based on the average Fob price Arab Medium crude at $25.65/bl during 2000/01, the landed price of crude at Mundra, Gujarat is estimated at Rs 9,920/MT (See Annexure 5).

Cost of inland transportation via pipeline is already built into the total project cost. Other operating costs for the refinery, as furnished by GGSRL, aggregate Rs 514 crores per annum. The analysis assumes cost escalation at 6%[a] p.a. to cover inflationary pressures.

Capacity utilisation is assumed to 50% in first year of operation; 90% in second year; and 100% thereafter.

Financial costs

Key assumptions towards estimates of financial costs for term loans are:

- A debt-equity ratio of 1.5:1
- Loan tenure of 8 years, with a moratorium of 3 years
- Interest rate for term-loan: 14% p.a.

Assessment of working capital is based on the following norms:

- Crude inventory of 10 days
- Operating costs for one month
- Work in process inventory of 7 days
- Finished product inventory of 30 days

Interest rate for working capital loan is considered at 16% p.a.

Depreciation

Fixed assets have been depreciated by the written down value method. Depreciation rates considered are 25% for plant & machinery and know-how fee/royalty and 10% for building and civil works. Salvage value of the assets is taken as the book value at the end of the 15 year period plus working capital.

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[a] Increase in WPI (Wholesale Price index) over past three years averaged 5.5%

Corporate tax

No tax holidays have been considered for the project. The tax payable was also compared with book profits to check for applicability of Minimum Alternate Tax (MAT[a]). Since, the tax payable turns out to be higher than 7.5% of the book profits, MAT has not been considered for the project.

Incentives/concessions

Financial implications of incentives extended by the State government are factored as detailed below:

Sales tax deferment

Deferment of sales tax to the extent of 300% of fixed capital investment to be availed in 15 years with a provision for repayment of deferred amount in 30 semi-annual instalments.

Fixed capital investment for the project aggregates Rs 7,958[b] crores. Accordingly, maximum benefit the project can avail is capped at Rs 23,873 crores (300% of FCI). With the cap the benefit is exhausted in the 14th year of operation (See Annexure 7).

The corresponding half yearly instalment to be initiated at the end of 15 years is Rs 796 crores (Rs 796 crores x 30 = Rs 23,873 crores).

Given the 60:40 debt-equity mix, the weighted average cost of capital for the project is estimated at 14.8%, assuming a 16% rate of return on equity. The present value of an annuity of 796 crores, initiated 15 years from zero date, with 30 half yearly instalments discounted at 14.8% is Rs 1,374 crores only.

As against this, the present value of sales tax benefit, i.e., sales tax charged to consumer but not surrendered to the State government is Rs 10,783 crores. The net benefit from sales tax deferment is, thus, Rs 9,408 crores (Rs 10,783 crores – Rs 1,374 crores). On a unit basis the incidence of sales tax deferment is Rs 780/MT or $ 2.28/bl.

Sharing of infrastructure development expenses

The State government has agreed to share infrastructure development cost to the extent of Rs 180 crores for,

- Access road to refinery site from National Highway-10 - As per data furnished by GGSRL , the actual road development costs accrued were

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[a] Levied at 7.5%, plus 5% surcharge on book profits

[b] Total project cost less capital investment towards pipeline

Rs 25 crores. Correspondingly, 50% of the cost (Rs 12.5 crores) is assumed to be borne by the State government.

- Augmentation of raw water canal – As per discussions with GGSRL officials, the 50% cost of augmenting raw water canal to be originally borne by State government (Rs 7.6 crores) is now being borne completely by GGSRL
- School & hospital in township – As per discussions with GGSRL, sharing of costs to the extent of 50% by State government have already been factored in project costs furnished by GGSRL

Other incentives

Other incentives, the implications of which have already been factored into the operating costs/pre-operative expenses of the refinery are:

- Supply of free water during construction period
- Exemption of electricity duty on generation of power for own consumption in the refinery for 15 years

Sensitivity

The sensitivity of key financial parameters of the project to incentives extended by the State government is indicated below in Table 2.2. (See Annexures 8 and 9)

Table 2.2 Sensitivity to concessions

Parameter	*With concessions/ incentives*	*Without concessions/ incentives*
Internal rate of return	18.93%	10.02%
Net Present Value	Rs 4277 crores	- Rs 4,546 crores
Payback period	9.7 years	17.3 years

As is evident, the project becomes unviable in the absence of the concessions extended to it. The most significant aspect of the concession scheme is the deferral on sales tax. The estimated benefit on a unit basis is estimated as Rs 780/MT or $ 2.28/bl.

Gross and net refining margins for the 15-year operating period are presented in Table 2.3.

Table 2.3 Refining margins: With incentives ($/bl)

Year	*Gross Refining Margin*	*Net Refining Margin*
Year 0	9.34	-2.96
Year 1	10.65	3.16
Year 2	10.67	4.16
Year 3	10.49	2.51
Year 4	10.32	3.07
Year 5	10.14	3.52
Year 6	9.96	3.88
Year 7	9.77	4.19
Year 8	9.58	4.44
Year 9	9.39	4.65
Year 10	9.19	4.83
Year 11	9.00	4.98
Year 12	8.80	4.90
Year 13	8.59	4.80
Year 14	8.38	4.70

Notes:

Gross Refining Margin = Sales - Crude costs -Operating costs

Net Refining Margin = Gross Refining Margin - Depreciation - Interest - Taxes

Variations in sales tax benefit

As is evident, the project is extremely sensitive to the deferred sales tax benefit incentive extended to it by the State Government. In order to analyse the sensitivity, two scenarios were constructed: one wherein the incentive period is slashed down to 10 years and the other with one-third reduction in sales tax rates in the state (See Annexures 10 and 11). The impact of these on project financials is presented in Table 2.4.

Table 2.4 Project financials with variations in sales tax benefit incentive

Parameter	*10-year incentive period*	*33% reduction in sales tax*
Internal rate of return	16.87%	16.62%
Net Present Value	Rs 1,908 crores	Rs 1,855 crores
Payback period	11.01 years	11.05 years

Fiscal treatment of sales tax benefit

In the event that the sales tax retained is treated as accrued income for the project, the tax payable is higher and the project IRR drops.

Table 2.5 Impact of fiscal treatment of sales tax benefit

Parameter	*Without tax on sales tax retained*	*With tax on sales tax retained*
Internal rate of return	18.93%	15.44%
Net Present Value	Rs 4277 crores	Rs 609 crores
Payback period	9.7 years	11.9 years

Cost of production

In a competitive environment, a refinery would emerge as a dominant player only if it has an edge over its competitors in terms of cost of production. The estimated cost of production for the Bhatinda refinery at first year of full capacity utilisation after expiry of the moratorium on the loan is presented in Table 2.6.

Table 2.6 Estimated cost of production for Bhatinda refinery (Rs/MT)

Parameter	*Value*
Crude cost	10527
Operating costs	680
Depreciation	833
Financial charges*	1212
Inventory carrying costs	234
Total	**13486**

** Excludes deferred sales tax benefit*

3

Financial analysis of Panipat refinery

Introduction

The analysis for the Bhatinda refinery is primarily based on project details furnished by GGSRL. Inputs for the financial analysis for IOC's panipat refinery expansion project have been collated from IOC officials; Government of Haryana; and information in the public domain. A brief description of data collected and key assumptions made for the analysis are presented below.

Project costs

The original project cost for the 6 MMTPA expansion of the Panipat refinery was pegged at Rs 3,365 crores. However, with fuel quality upgradation costs, the revised project cost is now Rs 4,165 crores. This includes Rs 500 crores towards expansion of the Salaya-Chaksu-Panipat section of the Salaya-Mathura pipeline to handle an additional 6 MMT of crude for the expansion.

The expansion project is to be executed over a period of 36 months. Phasing of capital investment assumed for the project is indicated in Table 3.1.

Table 3.1 Phasing of investment (Rs Crores)

Year	*Share*	*Amount*
-3	10%	367
-2	20%	733
-1	30%	1100
0	40%	1466

In addition to the above, the following additional expenses have been assumed,

- Margin money: 25% of current assets - Rs 117 crores
- Interest during construction: As per investment schedule indicated in Table 3.1 - Rs 550 crores

Total project cost is, thus, estimated at Rs 4,833 crores.

Yield pattern

The yield pattern of the expansion project has been assumed to be identical to the existing 6 MMTPA unit (Table 3.2)

Table 3.2 Yield pattern considered for the expansion (TMT)

Product	*Yield*	*Output*
LPG	2.8%	165
Naphtha	4.8%	288
MS	11.7%	700
ATF	1.8%	109
SKO	9.9%	592
HSD	45.2%	2713
LSHS	8.6%	513
Bitumen	6.1%	367
Fuel & Loss	9.0%	542
Total		6000

Operating costs

Annual operating costs (excluding depreciation) for the expansion are assumed to be similar to that for the existing unit at Panipat. The total incidence of operating costs factored in the analysis is Rs 174 crores for the base year. These have been escalated by 6% p.a. over the project life to account for inflationary pressures.

Financial analysis

Akin to the analysis undertaken for the Bhatinda refinery, key project parameters analysed to generate the profit & loss account and project cash flows are:

- Sales realisation
- Operating costs
- Financial costs: Interest on term loans and working capital
- Depreciation
- Corporate tax

Sales realisation

Refinery gate prices of products are assumed to be at import parity, i.e., the landed cost of product at the nearest port (Kandla, Gujarat) and rail freight thereafter till Panipat. Key assumptions in the price calculations are:

- Landed price derived from the average Fob Middle East product prices over the year 2000/01
- Exchange rate of Rs 48 per US dollar in base year with 2% devaluation in exchange rate thereafter
- Prevailing custom duties on products

Indicative import parity prices at Panipat are presented in Table 3.3. (See Annexure 12)

Table 3.3 Indicative base year refinery gate product prices: Panipat (Rs/MT)

Product	*Import Parity Price*
LPG	20992
MS	18106
Naphtha	15374
ATF	17213
SKO	15180
HSD	15287
LSHS	10508
Bitumen	7562

Based on the above, aggregate sales realisation for the expansion project at full capacity utilisation is estimated at Rs 8,392 crores.

Operating costs

Crude oil

The crude mix considered for the expansion is similar to the refinery's current crude mix (See Table 3.4).

Table 3.4 Crude mix considered for the expansion (TMT)

Crude	*Throughput*
HIGH SULPHUR	
Kuwait	3000
Suez Mix	300
Es Sider	100
Sub-Total	**3400**
LOW SULPHUR	
Escravos	1350
Forcados	1250
Sub-Total	**2600**
Total	**6000**

As per the average Fob prices for the above mentioned grades during the year 2000/01, the weighted average landed price of crude at Salaya, Gujarat is estimated at Rs 10,726/MT (See Annexure 13).

Crude transportation

As regards crude transportation, the original expansion plans envisaged augmenting the capacity of the Salaya-Chakshu-Panipat crude pipeline at a cost of Rs 500 crores. Prevailing costs towards crude transportation as estimated by the Expert Technical Group are Rs 433/MT. These would be even higher for the expansion project with the additional investment. Total project costs, under this arrangement, are higher at Rs 4,908 crores (inclusive of margin money and interest during construction).

However, as mentioned in the preceding chapter, IOC is now considering conversion of KBPL into a crude carrier for the expansion project. The cost towards use of jetty and associated facilities at Mundra is reported at Rs 120/MT, while that for the new link from Mundra to Kandla is estimated as Rs 59/MT. Operating costs for KBPL, as per indicative tariffs estimated by ETG, are likely to be of the order of Rs 150/MT. Accordingly, the costs for crude transportation for the expansion project are estimated at Rs 329/MT.

Other operating costs

Other operating costs for the project, covering salaries, repair and maintenance, chemicals and consumables, and administrative expenses, are assumed to be similar to that for the existing unit and estimated as Rs 174 crores per annum.

It may be noted that capacity utilisation is assumed to be 50% in first year of operation; 90% in second year; and 100% thereafter.

Financial costs

Key assumptions towards estimates of financial costs for term loans are:

- A debt-equity ratio of 1.5:1
- Loan tenure of 8 years, with a moratorium of 3 years
- Interest rate for term-loan: 14% p.a.

Assessment of working capital is based on the following norms:

- Crude inventory of 15 days (as for the existing unit at Panipat)
- Operating costs for one month
- Finished product inventory of 30 days

Interest rate for working capital loan is considered at 16% p.a.

Depreciation

Fixed assets have been depreciated by the written down value (WDV) method. In the absence of detailed information on break up of project costs, 70% of the total project cost is assumed to be representative of plant & machinery which is depreciated at 25% on WDV basis. Salvage value of the assets is taken as the book value at the end of the 15 year period plus working capital.

Corporate tax

A 7-year tax holiday has been considered for the project.

Incentives/concessions

Interviews with Haryana State Government officials revealed that the only financial benefit accorded to the expansion is a waiver on the Local Areas Development Tax (LADT). No benefits have been given to the project with respect to waiver/deferment of sales tax.

Exemption of Local Area Development Tax

Under Section 11 of Haryana Local Area Development Tax Act, 2000 the Government of Haryana has exempted the Panipat Refinery expansion of IOC, with effect from date of trial production, from the tax payable under said act in respect of entry of crude oil, feedstock, naphtha and other consumables like catalysts, chemicals, maintenance, spares into local area.

Under the same Act, the Government also exempts Para-xylene Purified Terethalic Acid project of IOC with effect from date of trial production from the tax payable under the said Act in respect of entry of naptha and other consumables like catalysts, chemicals, maintenance, spares into local area.

The tax is leviable at 4% of the landed cost of crude/consumables into local area. The existing project is not exempt from LADT. Based on crude priced prevailing over the period 2000/01, the incentive translates into an annual benefit of Rs 257 crores.

Infrastructure development

Officials in the Department of Industries, Government of Haryana, categorically stated that no financial incentives had been given to the refinery. Acquisition of land; provision of utilities; etc had all been undertaken for the project at prevailing market prices. The Government of Haryana had, however, formed a high powered co-ordination committee to ensure expeditious provision of all statutory clearances for the project to ensure timely implementation.

Sensitivity

One of the most important factors affecting the financial viability of the project is the mode of crude transportation. Original plans envisaged augmenting the capacity of the Salya-Chakshu-Panipat pipeline at a cost of Rs 500 crores. Now, IOC is reportedly considering conversion of the Kandla-Panipat section of the KBPL into a crude carrier. The sensitivity of key financial parameters of the project to this issue is examined in Table 3.5. (See Annexures 15 and 16)

Table 3.5 Sensitivity of expansion project to crude transportation arrangements

Parameter	*With KBPL conversion to crude carrier*	*Without KBPL conversion to crude carrier*
Internal rate of return	16.64%	12.53%
Net Present Value	Rs 490 crores	- Rs 664 crores
Payback period	18.6 years	25.5 years

As is evident, the project viability is under threat if KBPL is not used as a crude carrier. It may be expected, thus, that IOC would try to convert KBPL into a crude carrier to make the project viable.

Gross and net refining margins for the project, assuming KBPL conversion, over a 17-year operating period are presented in Table 3.6.

Table 3.6 Refining margins ($/bl)

Year	*Gross Refining Margin*	*Net Refining Margin*
Year 0	4.40	-1.76
Year 1	5.85	1.98
Year 2	5.94	3.30
Year 3	5.83	2.09
Year 4	5.71	2.60
Year 5	5.60	3.00
Year 6	5.49	3.31
Year 7	5.37	1.95
Year 8	5.25	2.08
Year 9	5.13	2.18
Year 10	5.01	2.27
Year 11	4.88	2.34
Year 12	4.76	2.29
Year 13	4.63	2.24
Year 14	4.50	2.18
Year 15	4.37	2.12
Year 16	4.23	2.05

Notes:

Gross Refining Margin = Sales - Crude costs -Operating costs

Net Refining Margin = Gross Refining Margin - Depreciation - Interest - Taxes

Cost of production

The estimated cost of production for the expansion project at first year of full capacity utilisation after expiry of moratorium on loan is presented in Table 3.7.

Table 3.7 Estimated cost of production for expansion project (Rs/MT)

Parameter	*Value*
Crude cost	11382
Operating costs	674
Depreciation	542
Financial charges	607
Inventory carrying costs	251
Total	**13455**

4

Comparisons and recommendations

In a market driven scenario, cost competitiveness is crucial. Given the vicinity of Panipat and Bhatinda, the Panipat refinery emerges as the key competitor to the proposed Bhatinda refinery. Project costs for the 6 MMTPA expansion at Panipat are substantially lower than that of the grass-roots refinery at Bhatinda. A comparison of the cost of production from the two projects at first year of full capacity utilisation indicates that the expansion project has a marginal edge over the Bhatinda refinery of the order of 0.2% in terms of refinery gate costs.

Table 4.1 Comparison of cost of production (Rs/MT)

Parameter	*Bhatinda refinery*	*Panipat expanion*
Crude cost	10527	11382
Operating costs	680	674
Depreciation	833	542
Financial charges	1212	607
Inventory carrying costs	234	251
Total	**13486**	**13455**

However, as against the Panipat expansion project, the Bhatinda refinery has the benefit of deferred sales tax payment. The net benefit of this incentive is estimated to be Rs 780/MT. With this benefit, the scenario changes altogether. *Panipat's refinery gate costs are now higher than those of Bhatinda by 5.9%.*

Table 4.2 Comparison of cost of production with sales tax benefits factored (Rs/MT)

Bhatinda refinery	*Panipat expanion*
12706	13455

Ofcourse, the competitiveness of the refineries would vary in individual markets depending upon freight economics from the two refineries.

commendations

The analysis reveals that without the incentives from the State Government, the refinery gate costs at Bhatinda are marginally higher than those at Panipat. The incentives have a substantial impact on project viability. With the incentives from the State Government, HPC's grass-roots refinery at Bhatinda has an edge over the expansion project at Panipat. In order to be further competitive, HPCL could additionally explore the following.

Provisions of sales tax deferment

Notably, the sales tax deferment has a pronounced impact on the economics of the project. Accordingly, HPCL must explore all possible avenues for maximising the benefit from this provision.

While availing the 15 years sales tax deferment, HPCL should attempt to seek the applicability of the same from the date of *commercial production* only. Further HPC could also explore the possibility of a moratorium, say 5 years, to initiate the half yearly instalments to payback the deferred liability. Given the time value of money, deferred repayment would further enhance project profitability.

Equity for deferred liability

The deferred sales tax payment is essentially an interest free loan from the State Government to the project. HPCL could, thus, explore the possibility of asking the State Government to consider the deferred liability as a convertible loan from the State Government to HPCL. Under the arrangement, HPCL could request the State Government to infuse the accumulated sales tax as equity participation in the project at the end of the 15-year deferral. This would ensure active participation of the State Government in the project at one hand and at the other strengthen the equity base of the project to raise fresh debt in the future.

Use of KBPL as a common carrier crude pipeline

The crude pipeline from Mundra to Bhatinda at a cost of Rs 2,353 crores, accounts for over 20% of the project costs. Since, IOC plans to convert KBPL into a crude carrier, HPC should try to use the same on a common carrier basis to transport crude for its refinery.

It may be noted that the KBPL was put up by IOC under the APM regime and hence IOC would have already received adequate consumption for the same from the oil pool. Moreover, in its current form as a product carrier, it is still used as a common carrier for the entire industry.

Accordingly, HPCL should try to persuade the State Government to take up the issue of 'common carrier' status for KBPL with the Union Government.

Infrastructure development costs

HPCL could also explore the possibility of asking the Punjab Government to bear the infrastructure development costs for the project in total instead of sharing the same to the extent of 50% only. Any relief towards fixed costs of the project, would reduce the cost of production and make the refinery competitive to IOC's expansion project.

Fast track clearances

Though not directly related to the refining project, HPCL could try to get assurances from the Punjab Government for fast track clearances for setting up new retail outlets in the state. A well established marketing infrastructure would help enhance overall bottomlines for the company.

Annexures

Annexure 1: Project cost break-up for Bhatinda refinery

Parameter	Units	Value
Land	Rs Crores	84.68
Site Development	Rs Crores	24.93
Project Management	Rs Crores	425.67
Process Design & Know-How	Rs Crores	303.10
Plant & Machinery	Rs Crores	6667.17
Roads & Buildings	Rs Crores	98.37
Start Up Expenses	Rs Crores	101.41
Preliminary & Preoperative Expenses	Rs Crores	150.97
Railway siding	Rs Crores	8.70
Sub-Total Refinery	**Rs Crores**	**7865.00**
Township	Rs Crores	92.50
Crude pipeline	Rs Crores	2353.39
Sub-Total Project	**Rs Crores**	**10310.89**
Contingency	Rs Crores	515.54
Total	**Rs Crores**	**10826.43**

Annexure 2: Phasing of investment for Bhatinda refinery

Year	Units	Amount
As on March 2001	Rs Crores	115.2
2001-02	Rs Crores	72.3
2002-03	Rs Crores	732.1
2003-04	Rs Crores	2141.9
2004-05	Rs Crores	4407.4
2005-06	Rs Crores	2220.4
2006-07	Rs Crores	1137.1
Total	**Rs Crores**	**10826.4**

Annexure 3: Yield pattern of Bhatinda refinery (TMT)

Product	Yield	Output
LPG	10.0%	900
MS	8.9%	800
ATF	1.3%	120
SKO	5.0%	450
HSD	61.1%	5500
Sulphur	2.6%	230
Fuel & Loss	11.1%	1000
Total		**9000**

Annexure 4: Indicative refinery gate price at Bhatinda and estimated sales tax incidence

Element	Unit	LPG	MS	Naphtha	ATF	SKO	HSD	FO
Fob Mid East Gulf (2000/01)	**$/MT**	**308**	**263**	**238**	**253**	**252**	**221**	**135**
Fob Mid East Gulf @ Rs 48/$	Rs/MT	14776	12643	11401	12123	12093	10607	6459
Load Port Charges @ $1/MT	Rs/MT	48	48	48	48	48	48	48
Ocean Freight	Rs/MT	1680	404	404	404	404	404	404
Fob + freight	**Rs/MT**	**16504**	**13095**	**11853**	**12575**	**12545**	**11059**	**6911**
Insurance @ 0.3%	Rs/MT	50	39	36	38	38	33	21
Ocean Loss @ 0.3%	Rs/MT	50	39	36	38	38	33	21
Cif	**Rs/MT**	**16603**	**13174**	**11924**	**12650**	**12620**	**11125**	**6953**
Landing Charges	Rs/MT	203	60	60	60	60	60	60
LC Charges	Rs/MT	50	40	36	38	38	33	21
Basic Customs Duty	Rs/MT	1681	2647	1198	2542	1268	2237	1402
Terminalling Charges	Rs/MT	1000	212	310	273	193	182	227
Landed Cost	**Rs/MT**	**19537**	**16131**	**13528**	**15562**	**14178**	**13636**	**8662**
Distance	kms	1265	1265	1265	1265	1265	1265	1265
Rly Code		220	300	280	250	150	250	280
Freight	Rs/MT	1604	2178	2034	1819	1103	1819	2034
Refinery Gate Price: Bhatinda	**Rs/MT**	**21141**	**18309**	**15562**	**17381**	**15281**	**15455**	**10696**
SALES TAX RATES								
Assessable Value	**Rs/SU**	**12735**	**12976**	**10608**	**13495**	**7968**	**12773**	**9987**
Excise	Rs/SU	1691	5859	2490	2781	1223	2473	1711
Special Excise	Rs/SU		1000				1000	
Surcharge	Rs/SU		6000					
Sub-Total	Rs/SU	14427	25834	13098	16276	9190	16246	11699
Punjab State Sales Tax	%	12%	20%	12%	20%	20%	8%	20%
Punjab State Sales Tax	**Rs/SU**	**1731**	**5167**	**1572**	**3255**	**1838**	**1300**	**2340**
Central Sales Tax	%	4%	4%	4%	4%	4%	4%	4%
Central Sales Tax	**Rs/SU**	**577**	**1033**	**524**	**651**	**368**	**650**	**468**

Annexure 5: Estimated crude costs for Bhatinda refinery

Element	Unit	ARAB MEDIUM
Fob Crude Price (2000/01)	**$/bl**	**25.65**
Fob Crude Price @ Rs 48 /USD	Rs/MT	8778.46
Ocean Freight (VLCC)	Rs/MT	140.01
Fob + Freight	**Rs/MT**	**8918.47**
Insurance @ 0.3%	Rs/MT	30.95
Ocean Loss @ 0.2%	Rs/MT	17.84
Cif	**Rs/MT**	**8967.25**
Landing Charges	Rs/MT	26.88
CIF + Landing charges	**Rs/MT**	**8994.13**
LC Charges @ 0.3%	Rs/MT	26.90
Basic Customs Duty @ 10%	Rs/MT	899.41
Landed cost	**Rs/MT**	**9920.45**

Annexure 6 Profit & loss account for Bhatinda refinery

Particulars	Units	Year 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Capacity	TMT	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000
Utilisation	%	50%	90%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Forex rate	Rs/$	48	49 0	49 9	50 9	52 0	53 0	54 1	55 1	56 2	57 4	58 5	59 7	60 9	62 1	63 3
Revenues	**Rs Crores**	6417	11752	13285	13517	13752	13992	14236	14484	14736	14993	15254	15520	15790	16065	16345
Less variable cost	Rs Crores	4464	8196	9289	9474	9663	9856	10053	10254	10459	10668	10881	11098	11320	11546	11777
Less O&M Expenses	Rs Crores	514	545	578	612	649	688	729	773	819	868	921	976	1034	1096	1162
Total	**Rs Crores**	4978	8741	9866	10086	10312	10544	10782	11027	11278	11536	11801	12074	12354	12642	12939
PBDIT	**Rs Crores**	1439	3011	3419	3430	3440	3448	3453	3457	3458	3456	3452	3446	3436	3423	3406
Gross margin	Rs/MT	3198	3718	3799	3812	3822	3831	3837	3841	3842	3840	3836	3828	3818	3803	3785
	$/bl	9 34	10 65	10 67	10 49	10 32	10.14	9 96	9 77	9.58	9 39	9 19	9 00	8 80	8 59	8 38
Less·																
Interest	Rs Crores	0	0	0	1091	955	818	682	546	409	273	136	0	0	0	0
Interest on WC	Rs Crores	132	232	257	258	258	259	259	260	261	261	262	263	263	264	265
Depreciation	Rs Crores	1763	1325	996	750	564	425	321	242	183	139	105	80	61	46	36
Tax	Rs Crores	0	560	834	513	640	749	844	927	1003	1072	1135	1195	1198	1198	1196
Net profit	**Rs Crores**	-455	894	1332	819	1022	1196	1348	1482	1602	1712	1814	1908	1914	1914	1910
Net margin	Rs/MT	-1012	1104	1480	910	1136	1329	1497	1646	1780	1902	2015	2120	2126	2126	2122
	$/bl	-2 96	3 16	4 16	2.51	3 07	3 52	3 88	4 19	4 44	4 65	4 83	4 98	4.90	4 80	4 70
LOAN REPAYMENT SCHEDULE																
Loan outstanding at beginning of year	Rs Crores				7793	6819	5845	4871	3896	2922	1948	974				
Interest	Rs Crores				1091	955	818	682	546	409	273	136				
Repayment	Rs Crores				974	974	974	974	974	974	974	974				
Loan outstanding at end of year	Rs Crores				6819	5845	4871	3896	2922	1948	974	0				
DEPRECIATION SCHEDULE																
Plant & Machinery+ Intangible [25%]																
Asset value at beginning	Rs Crores	6970	5228	3921	2941	2205	1654	1241	930	698	523	393	294	221	166	124
Depreciation for year	Rs Crores	1743	1307	980	735	551	414	310	233	174	131	98	74	55	41	31
Asset value at end of year	Rs Crores	5228	3921	2941	2205	1654	1241	930	698	523	393	294	221	166	124	93
Others (Buildings, siding, township) [10%]																
Asset value at beginning	Rs Crores	200	180	162	145	131	118	106	95	86	77	70	63	56	51	46
Depreciation for year	Rs Crores	20	18	16	15	13	12	11	10	9	8	7	6	6	5	5
Asset value at end of year	Rs Crores	180	162	145	131	118	106	95	86	77	70	63	56	51	46	41
WORKING CAPITAL																
Crude @ 10 days storage	Rs Crores	122	220	245	245	245	245	245	245	245	245	245	245	245	245	245
O&M Expenses	Rs Crores	43	45	48	51	54	57	61	64	68	72	77	81	86	91	97
Sales @ 30 days storage	Rs Crores	535	963	1070	1070	1070	1070	1070	1070	1070	1070	1070	1070	1070	1070	1070
WIP @ 7 days of sales	Rs Crores	123	222	246	246	246	246	246	246	246	246	246	246	246	246	246
Total	**Rs Crores**	823	1450	1608	1611	1614	1618	1621	1625	1629	1633	1637	1642	1646	1652	1657
TAXES																
PBDIT-Int-Dep	Rs Crores	0	1454	2165	1332	1663	1945	2191	2409	2605	2784	2949	3103	3111	3112	3105
Corporate Tax	Rs Crores	0	560	834	513	640	749	844	927	1003	1072	1135	1195	1198	1198	1196

Financial Parameters		
Capital cost	Rs Crores	12988
Debt Component	%	60%
Equity Component	%	40%
Interest rate for Loan	%	14%
Interest rate for working capital	%	16%
Return on equity	%	16%
Discount rate	%	15%
Caorporate Tax	%	38 5%
O&M Escalation	%	6 0%
Operation and maintenace expenses	Rs Crores	514
Margin Money 25% of Current Assets	Rs Crores	164
IDC	Rs Crores	1997

Annexure 7: Deferred Sales Tax Benefit for Bhatinda Refinery

Product	Units	Yield	PUNJAB DEMAND														
			0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
LPG	TMT	900	502	561	628	703	786	880	984	1101	1232	1378	1542	1726	1931	2161	2417
Naphtha	TMT	0	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
MS	TMT	800	540	574	610	649	690	733	780	829	881	936	995	1058	1125	1196	1271
ATF	TMT	120	63	63	63	64	64	64	64	65	65	65	66	66	66	67	67
SKO	TMT	450	393	397	402	407	413	418	423	428	433	439	444	450	456	461	467
HSD	TMT	5500	3169	3370	3584	3811	4052	4309	4582	4872	5181	5509	5858	6230	6624	7044	7491
Total	TMT	9000	4679	4980	5303	5649	6021	6422	6852	7315	7814	8351	8929	9554	10227	10954	11740
Product	Units		PUNJAB STATE SALES TAX														
LPG	Rs/MT		1731	1761	1792	1823	1855	1887	1919	1953	1987	2021	2056	2092	2128	2165	2203
Naphtha	Rs/MT		2306	2345	2385	2425	2466	2508	2550	2593	2637	2682	2728	2774	2821	2868	2917
MS	Rs/MT		7290	7383	7476	7571	7666	7763	7861	7961	8061	8163	8267	8371	8477	8584	8693
ATF	Rs/MT		4193	4266	4341	4417	4495	4574	4654	4735	4819	4903	4989	5077	5166	5256	5349
SKO	Rs/MT		2362	2405	2449	2494	2539	2586	2633	2681	2730	2780	2830	2882	2935	2988	3043
HSD	Rs/MT		1573	1598	1624	1651	1678	1705	1733	1761	1790	1819	1848	1878	1909	1940	1972
Product	Units		REFINERY PRODUCT ABSORPTION IN PUNJAB														
LPG	TMT		502	561	628	703	786	880	900	900	900	900	900	900	900	900	900
Naphtha	TMT		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MS	TMT		540	574	610	649	690	733	780	800	800	800	800	800	800	800	800
ATF	TMT		63	63	63	64	64	64	64	65	65	65	66	66	66	67	67
SKO	TMT		393	397	402	407	413	418	423	428	433	439	444	450	450	450	450
HSD	TMT		3169	3370	3584	3811	4052	4309	4582	4872	5181	5500	5500	5500	5500	5500	5500
BENEFIT	Rs Crores		1098	1184	1277	1378	1488	1607	1721	1816	1901	1989	2022	2054	2086	2118	2151
Product	Units		CENTRAL SALES TAX														
LPG	Rs/MT		577	587	597	608	618	629	640	651	662	674	685	697	709	722	734
Naphtha	Rs/MT		769	782	795	808	822	836	850	864	879	894	909	925	940	956	972
MS	Rs/MT		1458	1477	1495	1514	1533	1553	1572	1592	1612	1633	1653	1674	1695	1717	1739
ATF	Rs/MT		839	853	868	883	899	915	931	947	964	981	998	1015	1033	1051	1070
SKO	Rs/MT		472	481	490	499	508	517	527	536	546	556	566	576	587	598	609
HSD	Rs/MT		786	799	812	825	839	852	866	880	895	909	924	939	955	970	986
Product	Units		REFINERY PRODUCT ABSORPTION OUTSIDE PUNJAB														
LPG	TMT		398	339	272	197	114	20	0	0	0	0	0	0	0	0	0
Naphtha	TMT		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MS	TMT		260	226	190	151	110	67	20	0	0	0	0	0	0	0	0
ATF	TMT		57	57	57	56	56	56	56	55	55	55	54	54	54	53	53
SKO	TMT		57	53	48	43	37	32	27	22	17	11	6	0	0	0	0
HSD	TMT		2331	2130	1916	1689	1448	1191	918	628	319	0	0	0	0	0	0
BENEFIT	Rs Crores		252	231	207	181	152	120	89	62	35	6	6	5	6	6	6
TOTAL BENEFIT	Rs Crores		1350	1415	1484	1559	1640	1727	1810	1878	1935	1995	2027	2060	2092	900	0
CUMULATIVE BENEFIT	Rs Crores		1350	2764	4249	5808	7448	9176	10986	12864	14799	16794	18821	20881	22973	23873	23873
FIXED CAPITAL INVESTMENT	Rs Crores		7958														
MAX BENEFIT	Rs Crores		23873														
TOTAL AMOUNT	Rs Crores		23873														
EQUATED SEMI-ANNUAL INSTALLMENT	Rs Crores		796														
PV OF INSTALLMENTS AT YEAR 0	Rs Crores		1374														
PV OF ST RETAINED	Rs Crores		1350	1232	1126	1031	944	866	791	715	642	576	510	451	399	150	0
AGGREGATE ST RETAINED	Rs Crores		10783														
TOTAL BENEFIT	Rs Crores		9408														
AGGREGATE THROUGHPUT	TMT		120600														
IMPACT ON UNIT BASIS	Rs/MT		780														
	$/bl		2.28														

Annexure 8: Cash Flow for Bhatinda Refinery with Benefits from State Government

Particulars WITH BENEFITS	Units	Year -5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
CASH FLOW FROM OPERATIONS																						
Operating profit	Rs Crores						1439	3011	3419	3430	3440	3448	3453	3457	3458	3456	3452	3446	3436	3423	3406	
Less Interest on Working Capital	Rs Crores						-132	-232	-257	-258	-258	-259	-259	-260	-261	-261	-262	-263	-263	-264	-265	
Less Taxes	Rs Crores						0	-560	-834	-513	-640	-749	-844	-927	-1003	-1072	-1135	-1195	-1198	-1198	-1196	
Total	Rs Crores	0	0	0	0	0	1307	2219	2328	2660	2542	2440	2350	2269	2194	2123	2055	1988	1974	1960	1945	0
CASH FLOW FROM INVESTMENTS																						
Capital investment	Rs Crores	-175	-732	-2142	-4407	-2220	-1137															
Sale of assets (Salvage value)	Rs Crores																					1791
Total	Rs Crores	-175	-732	-2142	-4407	-2220	-1137	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1791
CASH FLOW FROM FINANCING																						
Interest during construction	Rs Crores	-15	-78	-269	-677	-958	0															
Interest on term loan	Rs Crores						0	0	0	-1091	-955	-818	-682	-546	-409	-273	-136	0	0	0	0	0
Deferred Sales Tax	Rs Crores						675	1273	1484	1559	1640	1727	1810	1878	1935	1995	2027	2060	2092	900	0	-9490
Total	Rs Crores	-15	-78	-269	-677	-958	675	1273	1484	468	686	909	1128	1332	1526	1723	1891	2060	2092	900	0	-9490
NET CASH FLOW	Rs Crores	-190	-810	-2411	-5084	-3179	845	3493	3813	3128	3227	3349	3479	3601	3720	3846	3946	4048	4066	2860	1945	-7699
INTERNAL RATE OF RETURN	%						18.93%															
PV OF CASH STREAM	Rs Crores						845	3042	2893	2068	1858	1679	1520	1370	1233	1111	993	887	776	475	282	-971
NET PRESENT VALUE	Rs Crores						4277															
ANNUAL CASH GENERATION	Rs Crores						1337															
PAYBACK PERIOD	Years						9.7															

Annexure 9: Cash Flow for Bhatinda refinery without benefits from State Government

Particulars WITHOUT BENEFITS ▼	Units	Year -5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
CASH FLOW FROM OPERATIONS																						
Operating profit	Rs Crores						1439	3011	3419	3430	3440	3448	3453	3457	3458	3456	3452	3446	3436	3423	3406	
Less· Interest on Working Capital	Rs Crores						-132	-232	-257	-258	-258	-259	-259	-260	-261	-261	-262	-263	-263	-264	-265	
Less Taxes	Rs Crores						0	-560	-834	-513	-640	-749	-843	-927	-1003	-1072	-1135	-1195	-1198	-1198	-1196	
Total	**Rs Crores**	**0**	**0**	**0**	**0**	**0**	**1307**	**2219**	**2328**	**2660**	**2542**	**2440**	**2350**	**2269**	**2194**	**2123**	**2055**	**1988**	**1974**	**1960**	**1945**	**0**
CASH FLOW FROM INVESTMENTS																						
Capital investment	Rs Crores	-187 5	-732	-2142	-4407	-2220	-1137															
Sale of assets (Salvage value)	Rs Crores																					1791
Total	**Rs Crores**	-187.5	-732	-2142	-4407	-2220	-1137	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1791
CASH FLOW FROM FINANCING																						
Interest during construction	Rs Crores	-16	-79	-270	-679	-960	0															
Interest on term loan	Rs Crores						0	0	0	-1092	-955	-819	-682	-546	-409	-273	-136	0	0	0	0	0
Deferred Sales Tax	Rs Crores						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**Rs Crores**	**-16**	**-79**	**-270**	**-679**	**-960**	**0**	**0**	**0**	**-1092**	**-955**	**-819**	**-682**	**-546**	**-409**	**-273**	**-136**	**0**	**0**	**0**	**0**	**0**
NET CASH FLOW	**Rs Crores**	**-203**	**-812**	**-2412**	**-5086**	**-3181**	**170**	**2219**	**2328**	**1568**	**1587**	**1621**	**1668**	**1724**	**1785**	**1851**	**1919**	**1988**	**1974**	**1960**	**1945**	**1791**
INTERNAL RATE OF RETURN	%						10.02%															
PV OF CASH STREAM	Rs Crores						170	1933	1767	1037	913	813	729	656	592	534	483	436	377	326	282	226
NET PRESENT VALUE	Rs Crores						-4546															
ANNUAL CASH GENERATION	Rs Crores						752															
PAYBACK PERIOD	Years						17.3															

Annexure 10: Cash Flow for Bhatinda refinery with Sales Tax Defferment for 10 years

Particulars	Units	Year																				
		-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
CASH FLOW FROM OPERATIONS																						
Operating profit	Rs Crores						1439	3011	3419	3430	3440	3448	3453	3457	3458	3456	3452	3446	3436	3423	3406	
Less Interest on Working Capital	Rs Crores						-132	-232	-257	-258	-258	-259	-259	-260	-261	-261	-262	-263	-263	-264	-265	
Less Taxes	Rs Crores						0	-560	-834	-513	-640	-749	-843	-927	-1003	-1072	-1135	-1195	-1198	-1198	-1196	
Total	Rs Crores	0	0	0	0	0	1307	2219	2328	2660	2542	2440	2350	2269	2194	2123	2055	1988	1974	1960	1945	0
CASH FLOW FROM INVESTMENTS																						
Capital investment	Rs Crores	-175	-732	-2142	-4407	-2220	-1137															
Sale of assets (Salvage value)	Rs Crores																					1791
Total	Rs Crores	-175	-732	-2142	-4407	-2220	-1137	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1791
CASH FLOW FROM FINANCING																						
Interest during construction	Rs Crores	-16	-79	-270	-679	-960	0															
Interest on term loan	Rs Crores						0	0	0	-1092	-955	-819	-682	-546	-409	-273	-136	0	0	0	0	0
Deferred Sales Tax	Rs Crores						675	1273	1484	1559	1640	1727	1810	1878	1935	1995	-8174					
Total	Rs Crores	-16	-79	-270	-679	-960	675	1273	1484	468	685	908	1128	1332	1526	1722	-8311	0	0	0	0	0
NET CASH FLOW	Rs Crores	-191	-812	-2412	-5086	-3181	845	3493	3813	3128	3227	3349	3478	3601	3720	3846	-6256	1988	1974	1960	1945	1791
INTERNAL RATE OF RETURN	%						16.86%															
PV OF CASH STREAM	Rs Crores						845	3042	2893	2067	1858	1679	1520	1370	1233	1111	-1573	436	377	326	282	226
NET PRESENT VALUE	Rs Crores						1897															
ANNUAL CASH GENERATION	Rs Crores						1179															
PAYBACK PERIOD	Years						11.0															

Annexure 11: Cash Flow for Bhatinda Refinery with 33% Reduction in Punjab State Sales Tax Rates

Particulars	Units	Year																				
		-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
CASH FLOW FROM OPERATIONS																						
Operating profit	Rs Crores						1439	3011	3419	3430	3440	3448	3453	3457	3458	3456	3452	3446	3436	3423	3406	
Less Interest on Working Capital	Rs Crores						-132	-232	-257	-258	-258	-259	-259	-260	-261	-261	-262	-263	-263	-264	-265	
Less Taxes	Rs Crores						0	-560	-834	-513	-640	-749	-843	-927	-1003	-1072	-1135	-1195	-1198	-1198	-1196	
Total	**Rs Crores**	**0**	**0**	**0**	**0**	**0**	**1307**	**2219**	**2328**	**2660**	**2542**	**2440**	**2350**	**2269**	**2194**	**2123**	**2055**	**1988**	**1974**	**1960**	**1945**	**0**
CASH FLOW FROM INVESTMENTS																						
Capital investment	Rs Crores	-175	-732	-2142	-4407	-2220	-1137															
Sale of assets (Salvage value)	Rs Crores																					1791
Total	**Rs Crores**	**-175**	**-732**	**-2142**	**-4407**	**-2220**	**-1137**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1791**
CASH FLOW FROM FINANCING																						
Interest during construction	Rs Crores	-16	-79	-270	-679	-960	0															
Interest on term loan	Rs Crores						0	0	0	-1092	-955	-819	-682	-546	-409	-273	-136	0	0	0	0	0
Deferred Sales Tax	Rs Crores						494	922	1063	1105	1149	1197	1242	1278	1308	1339	1360	1382	1403	1425	1447	-7438
Total	**Rs Crores**	**-16**	**-79**	**-270**	**-679**	**-960**	**494**	**922**	**1063**	**13**	**194**	**378**	**560**	**733**	**899**	**1066**	**1224**	**1382**	**1403**	**1425**	**1447**	**-7438**
NET CASH FLOW	**Rs Crores**	**-191**	**-812**	**-2412**	**-5086**	**-3181**	**664**	**3141**	**3391**	**2673**	**2736**	**2818**	**2910**	**3002**	**3093**	**3189**	**3279**	**3370**	**3378**	**3385**	**3392**	**-5647**
INTERNAL RATE OF RETURN	**%**						**16.61%**															
PV OF CASH STREAM	Rs Crores						664	2736	2573	1767	1575	1413	1271	1142	1025	921	825	738	645	563	491	-712
NET PRESENT VALUE	Rs Crores						1844															
ANNUAL CASH GENERATION	Rs Crores						1176															
PAYBACK PERIOD	Years						11.1															

Annexure 12: Indicative import parity price at Panipat

Element	Unit	LPG	MS	Naphtha	ATF	SKO	HSD	FO
Fob Mid East Gulf (2000/01)	**$/MT**	**308**	**263**	**238**	**253**	**252**	**221**	**135**
Fob Mid East Gulf @ Rs 48/$	Rs/MT	14776	12643	11401	12123	12093	10607	6459
Load Port Charges @ $1/MT	Rs/MT	48	48	48	48	48	48	48
Ocean Freight	Rs/MT	1680	404	404	404	404	404	404
Fob + freight	**Rs/MT**	**16504**	**13095**	**11853**	**12575**	**12545**	**11059**	**6911**
Insurance @ 0.3%	Rs/MT	50	39	36	38	38	33	21
Ocean Loss @ 0.3%	Rs/MT	50	39	36	38	38	33	21
Cif	**Rs/MT**	**16603**	**13174**	**11924**	**12650**	**12620**	**11125**	**6953**
Landing Charges	Rs/MT	203	60	60	60	60	60	60
LC Charges	Rs/MT	50	40	36	38	38	33	21
Basic Customs Duty	Rs/MT	1681	2647	1198	2542	1268	2237	1402
Terminalling Charges	Rs/MT	1000	212	310	273	193	182	227
Landed Cost	**Rs/MT**	**19537**	**16131**	**13528**	**15562**	**14178**	**13636**	**8662**
INLAND FREIGHT								
Kandla-Panipat Distance	Kms	1137	1137	1137	1137	1137	1137	1137
Railway Classification Code		220	300	280	250	150	250	280
Railway Freight	Rs/MT	1456	1975	1845	1650	1002	1650	1845
Import parity Price: Panipat	**Rs/MT**	**20992**	**18106**	**15374**	**17213**	**15180**	**15287**	**10508**

Annexure 13: Estimated crude costs for Panipat expansion project

Element	Unit	HIGH SULPHUR			LOW SULPHUR	
		KUWAIT	SUEZ MIX	ES SIDER	ESCRAVOS	FORCADOS
Fob Crude price (2000/01)	**$/bl**	**25.44**	**24.64**	**27.75**	**28.19**	**27.92**
Fob Crude price @ Rs 48/$	Rs/MT	8865.91	8525.97	9949.44	10107.51	9594.11
Freight (VLCC)	Rs/MT	154.61	359.90	359.90	566.48	566.48
Fob + freight	**Rs/MT**	**9020.52**	**8885.87**	**10309.35**	**10673.99**	**10160.60**
Insurance @ 0.3 %	Rs/MT	31.30	30.83	35.77	37.04	35.26
Ocean Loss @ 0.2%	Rs/MT	18.04	17.77	20.62	21.35	20.32
Cif	**Rs/MT**	**9069.87**	**8934.48**	**10365.74**	**10732.38**	**10216.18**
Landing charges	Rs/MT	26.88	26.88	26.88	26.88	26.88
CIF + Landing charges	**Rs/MT**	**9096.75**	**8961.36**	**10392.62**	**10759.26**	**10243.06**
LC Charges	Rs/MT	27.21	26.80	31.10	32.20	30.65
Basic Customs duty	Rs/MT	909.67	896.14	1039.26	1075.93	1024.31
Landed cost	**Rs/MT**	**10033.63**	**9884.30**	**11462.98**	**11867.38**	**11298.01**
Crude processed	TMT	3000	300	100	1350	1250
Crude cost (Weighted Average)	**Rs/MT**	**10726.00**				

Annexure 14: Profit & loss account for Panipat Expansion project

Particulars	Units	Year																
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Throughput	TMT	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000
Utilisation	%	50%	90%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Forex Rate	Rs/$	48.0	49.0	49.9	50.9	52.0	53.0	54.1	55.1	56.2	57.4	58.5	59.7	60.9	62.1	63.3	64.6	65.9
Revenues	Rs Crores	4053	7423	8392	8538	8688	8840	8994	9152	9312	9474	9640	9809	9980	10155	10332	10513	10697
Less variable cost	Rs Crores	3415	6105	6893	7026	7163	7302	7444	7589	7736	7887	8040	8197	8357	8520	8686	8856	9029
Less O&M Expenses	Rs Crores	174	184	195	207	219	232	246	261	277	293	311	330	349	370	393	416	441
Total	Rs Crores	3589	6289	7088	7233	7382	7534	7690	7850	8013	8180	8351	8527	8706	8890	9079	9272	9470
PBDIT	Rs Crores	464	1134	1304	1305	1306	1305	1304	1302	1299	1294	1289	1282	1274	1264	1254	1241	1227
Gross Margin	Rs/Mt	1547	2099	2173	2175	2176	2176	2173	2170	2164	2157	2148	2137	2123	2107	2089	2069	2045
	$/bl	4.40	5.85	5.94	5.83	5.71	5.60	5.49	5.37	5.25	5.13	5.01	4.88	4.76	4.63	4.50	4.37	4.23
Less.																		
Interest	Rs Crores	0	0	0	364	318	273	227	182	136	91	45	0	0	0	0	0	0
Interest on WC	Rs Crores	78	138	153	153	153	153	154	154	154	154	155	155	155	155	156	156	156
Depreciation	Rs Crores	758	569	426	320	240	180	135	101	76	57	43	32	24	18	14	10	8
Tax	Rs Crores	0	0	0	0	0	0	0	392	418	441	462	481	481	480	477	474	470
Net profit	Rs Crores	-372	427	725	468	594	699	788	473	514	551	584	614	614	611	607	601	594
Margin	Rs/MT	-619	712	1208	781	990	1165	1313	788	857	918	973	1023	1023	1019	1012	1002	990
	$/bl	-1.76	1.98	3.30	2.09	2.60	3.00	3.31	1.95	2.08	2.18	2.27	2.34	2.29	2.24	2.18	2.12	2.05
LOAN REPAYMENT SCHEDULE																		
Loan outstanding at beginning of year	Rs Crores				2600	2275	1950	1625	1300	975	650	325						
Interest	Rs Crores				364	318	273	227	182	136	91	45						
Repayment	Rs Crores				325	325	325	325	325	325	325	325						
Loan outstanding at end of year	Rs Crores				2275	1950	1625	1300	975	650	325	0						
DEPRECIATION SCHEDULE																		
Plant & Machinery [25%]																		
Asset value at beginning	Rs Crores	3033	2275	1706	1279	960	720	540	405	304	228	171	128	96	72	54	41	30
Depreciation for year	Rs Crores	758	569	426	320	240	180	135	101	76	57	43	32	24	18	14	10	8
Asset value at end of year	Rs Crores	2275	1706	1279	960	720	540	405	304	228	171	128	96	72	54	41	30	23
WORKING CAPITAL																		
Crude @ 15 days storage	Rs Crores	132	238	264	264	264	264	264	264	264	264	264	264	264	264	264	264	264
O&M Expenses	Rs Crores	14	15	16	17	18	19	21	22	23	24	26	27	29	31	33	35	37
Sales @ 30 days storage	Rs Crores	338	608	675	675	675	675	675	675	675	675	675	675	675	675	675	675	675
Total	Rs Crores	484	861	956	957	958	959	960	962	963	964	966	967	969	971	973	975	977
TAXES																		
PBDIT-Int-Dep	Rs Crores								1019	1086	1146	1200	1250	1250	1246	1240	1231	1219
Corporate Tax	Rs Crores								392	418	441	462	481	481	480	477	474	470
Financial Parameters																		
Capital cost	Rs Crores	4333																
Debt Component	%	60%																
Equity Component	%	40%																
Interest rate for Loan	%	14%																
Interest rate for working capital	%	16%																
Return on equity	%	16%																
Discount rate	%	15%																
Caorporate Tax	%	38 5%																
O&M Escalation	%	6 0%																
Operation and maintenace expenses	Rs Crores	174																
Margin Money 25% of Current Assets	Rs Crores	117																
IDC	Rs Crores	550																

Annexure 13: Estimated crude costs for Panipat expansion project

Element	Unit	HIGH SULPHUR			LOW SULPHUR	
		KUWAIT	SUEZ MIX	ES SIDER	ESCRAVOS	FORCADOS
Fob Crude price (2000/01)	**$/bl**	**25.44**	**24.64**	**27.75**	**28.19**	**27.92**
Fob Crude price @ Rs 48/$	Rs/MT	8865.91	8525.97	9949.44	10107.51	9594.11
Freight (VLCC)	Rs/MT	154.61	359.90	359.90	566.48	566.48
Fob + freight	**Rs/MT**	**9020.52**	**8885.87**	**10309.35**	**10673.99**	**10160.60**
Insurance @ 0.3 %	Rs/MT	31.30	30.83	35.77	37.04	35.26
Ocean Loss @ 0.2%	Rs/MT	18.04	17.77	20.62	21.35	20.32
Cif	**Rs/MT**	**9069.87**	**8934.48**	**10365.74**	**10732.38**	**10216.18**
Landing charges	Rs/MT	26.88	26.88	26.88	26.88	26.88
CIF + Landing charges	**Rs/MT**	**9096.75**	**8961.36**	**10392.62**	**10759.26**	**10243.06**
LC Charges	Rs/MT	27.21	26.80	31.10	32.20	30.65
Basic Customs duty	Rs/MT	909.67	896.14	1039.26	1075.93	1024.31
Landed cost	**Rs/MT**	**10033.63**	**9884.30**	**11462.98**	**11867.38**	**11298.01**
Crude processed	TMT	3000	300	100	1350	1250
Crude cost (Weighted Average)	**Rs/MT**	**10726.00**				

Annexure 16 Cash Flow for Panipat expansion project without conversion of KBPL to crude carrier

Particulars WITHOUT KBPL CONVERSION	Units	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
CASH FLOW FROM OPERATIONS																						
Operating profit	Rs Crores				401	1071	1241	1242	1243	1242	1241	1239	1236	1231	1226	1219	1211	1202	1191	1178	1164	
Less Interest on Working Capital	Rs Crores				-78	-138	-153	-153	-153	-153	-154	-154	-154	-154	-155	-155	-155	-155	-156	-156	-156	
Less Taxes	Rs Crores				0	0	0	0	0	0	0	-353	-383	-410	-433	-455	-456	-455	-453	-449	-445	
Total	**Rs Crores**	*0*	*0*	*0*	324	933	1088	1089	1090	1089	1087	732	698	667	638	609	600	591	583	573	563	0
CASH FLOW FROM INVESTMENTS																						
Capital investment (10 20 30 40)	Rs Crores	-417	-833	-1250	-1666																	
Sale of assets (Salvage value)	Rs Crores																					1003
Total	**Rs Crores**	-417	-833	-1250	-1666	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1003
CASH FLOW FROM FINANCING																						
Interest during construction	Rs Crores	-58	-183	-384	0																	
Interest on term loan	Rs Crores				0	0	0	-412	-361	-309	-258	-206	-155	-103	-52	0	0	0	0	0	0	0
Total	**Rs Crores**	-58	-183	-384	0	0	0	-412	-361	-309	-258	-206	-155	-103	-52	0	0	0	0	0	0	0
NET CASH FLOW	**Rs Crores**	-475	-1016	-1633	-1342	933	1088	677	729	780	830	525	544	564	586	609	600	591	583	573	563	1003
INTERNAL RATE OF RETURN	%				12.53%																	
PV OF CASH STREAM	Rs Crores				-1342	813	826	447	420	391	363	200	180	163	147	133	115	98	84	72	62	96
NET PRESENT VALUE	Rs Crores				-664																	
ANNUAL CASH GENERATION	Rs Crores				192																	
PAYBACK PERIOD	Years				25.5																	

[Authorised English Translation]

HARYANA GOVERNMENT

EXCISE AND TAXATION DEPARTMENT

Notification

The 10th April, 2002

No. S.O. 36/H.A. 13/2000/S. 11/2002.—In exercise of the powers conferred by sub-section (1) of section 11 of the Haryana Local Area Development Tax Act, 2000 (Act 13 of 2000), and all other powers enabling him in this behalf, the Governor of Haryana being of the opinion that it is necessary in public interest so to do, hereby exempts Panipat Refinery Expansion Project of Indian Oil Corporation Limited with effect from the date of trial production from the tax payable under the said Act in respect of entry of crude oil, feed stock, Naptha feed stock and other consumables like catalyst, chemicals and maintenance spares, into local area.

A.N. MATHUR,

Financial Commissioner and Principal Secretary to
Government Haryana, Excise and
Taxation Department.

[Authorised English Translation]

HARYANA GOVERNMENT

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Notification

The 10th April, 2002

No. S.O.37/H.A. 13/2000/S. 11/2002.—In exercise of the powers conferred by sub-section (1) of section 11 of the Haryana Local Area Development Tax Act, 2000 (Act 13 of 2000), and all other powers enabling him in this behalf, the Governor of Haryana being of the opinion that it is necessary in public interest so to do, hereby exempts Para Xylene-Purified Terethalic Acid Project of Indian Oil Corporation Limited with effect from the date of trial production from the tax payable under the said Act in respect of entry of Naptha feed stock and other consumables like catalyst, chemicals and maintenance spares, into local area.

A.N. MATHUR,

Financial Commissioner and Principal Secretary to
Government Haryana, Excise and
Taxation Department.

34091—L.R.—H.G.P., Chd.